CLAIMS:

1. A phase shifter comprising:

a first power divider configured to receive a signal and provide plural quadrature components of the signal;

plural mixers coupled with the first power divider and configured to scale the quadrature components using a phase shift angle; and

a second power divider coupled with the mixers and configured to combine the scaled quadrature components to shift the phase angle of the input signal by the phase shift angle.

2. The phase shifter according to claim 1 wherein the first power divider comprises a ninety degree power divider configured to provide the signal into a sine component and a cosine component.

3. The phase shifter according to claim 1 further comprising a storage device configured to store plural sine values and plural cosine values and to output a sine value and a cosine value individually corresponding to the phase shift angle.

4. The phase shifter according to claim 1 further comprising a storage device configured to store a sine value and a cosine value individually corresponding to the phase shift angle.

5. The phase shifter according to claim 4 wherein the mixers are coupled with the storage device and individually configured to multiply one of the quadrature components by one of the sine value and the cosine value.

6. The phase shifter according to claim 1 wherein the second power divider comprises a zero degree power divider configured to add the scaled quadrature components.

7. A phase shifter comprising:

a first input configured to receive a signal having a phase angle;

a second input configured to receive a phase shift angle;

a first power divider coupled with the first input and configured to provide the signal into a first component and a second component;

a first mixer coupled with the first power divider and the second input and configured to scale the first component using the phase shift angle;

a second mixer coupled with the first power divider and the second input and configured to scale the second component using the phase shift angle; and

a second power divider coupled with the first mixer and the second mixer and configured to combine the first scaled component and the second scaled component to shift the phase angle of the input signal by the phase shift angle.

8. The phase shifter according to claim 7 wherein the first power divider comprises a ninety degree power divider configured to provide the signal into quadrature components.

9. The phase shifter according to claim 7 wherein the first power divider is configured to provide the signal into a sine component and a cosine component.

10. The phase shifter according to claim 7 further comprising a storage device coupled with the second input and being configured to store plural sine values and plural cosine values and output a sine value and a cosine value individually corresponding to the phase shift angle.

11. The phase shifter according to claim 7 further comprising a storage device configured to store a sine value and a cosine value individually corresponding to the phase shift angle.

12. The phase shifter according to claim 11 wherein the mixers are coupled with the storage device and individually configured to multiply one of the first and second components by one of the sine value and the cosine value.

13. The phase shifter according to claim 7 wherein the second power divider comprises a zero degree power divider configured to add the first scaled component and the second scaled component.

14. An interrogator of a backscatter communication system comprising:

a transmitter configured to output a local continuous wave signal and a radio frequency continuous wave signal; and

a receiver configured to receive the local continuous wave signal and a modulated radio frequency continuous wave signal, the receiver including:

a phase shifter configured to adjust a phase angle of the local continuous wave signal by a phase shift angle, the phase shifter including a first power divider configured to provide a first component and a second component of the local continuous wave signal, plural mixers configured to scale the first component and the second component using the phase shift angle, and a second power divider configured to combine the scaled first component and the scaled second component to provide an adjusted continuous wave signal; and

a coupler configured to combine the adjusted continuous wave signal and the modulated radio frequency continuous wave signal.

15. The interrogator according to claim 14 wherein the first power divider is configured to provide the signal into quadrature components.

16. The interrogator according to claim 14 wherein the first power divider comprises a ninety degree power divider configured to provide the signal into a sine component and a cosine component.

17. The interrogator according to claim 14 further comprising a storage device configured to store plural sine values and plural cosine values and output a sine value and a cosine value individually corresponding to the phase shift angle.

18. The interrogator according to claim 14 further comprising a storage device configured to store a sine value and a cosine value individually corresponding to the phase shift angle.

19. The interrogator according to claim 18 wherein the mixers are coupled with the storage device and individually configured to multiply one of the first and second components by one of the sine value and the cosine value.

20. The interrogator according to claim 14 wherein the second power divider comprises a zero degree power divider configured to add the scaled first component and the scaled second component.

21. A phase shifter comprising:

a first input configured to receive a signal having a phase angle;

a second input configured to receive a phase shift angle;

a storage device configured to receive the phase shift angle, to store plural sine values and plural cosine values, and to output the sine value and cosine value which correspond to the phase shift angle;

a ninety degree power divider coupled with the first input and configured to provide the signal into a sine component and a cosine component;

a first mixer coupled with the ninety degree power divider and the storage device and configured to multiply the sine component of the signal by the sine value corresponding to the phase shift angle;

a second mixer coupled with the ninety degree power divider and the storage device and configured to multiply the cosine component of the signal by the cosine value corresponding to the phase shift angle; and

a zero degree power divider coupled with the first mixer and the second mixer and configured to add the sine component of the signal and the cosine component of the signal to shift the phase angle of the signal by the phase shift angle.

22. A method of shifting a phase angle of a signal comprising:

providing a signal having a phase angle;

providing a phase shift angle;

providing the signal into a first component and a second component;

scaling the first component using the phase shift angle;

scaling the second component using the phase shift angle;

combining the first component and the second component after the scalings to shift the phase angle of the signal by the phase shift angle.

23. The method according to claim 22 wherein the providing the signal into a first component and a second component comprises providing the signal into quadrature components.

24. The method according to claim 22 wherein the providing the signal into a first component and a second component comprises providing the signal into a sine component and a cosine component.

25. The method according to claim 22 further comprising:

storing a plurality of sine values and cosine values; and

outputting one sine value and one cosine value individually corresponding to the phase shift angle.

26. The method according to claim 22 further comprising storing a sine value and a cosine value individually corresponding to the phase shift angle.

27. The method according to claim 26 wherein the scalings individually comprise multiplying one of the first component and the second component by one of the sine value and the cosine value.

28. The method according to claim 22 wherein the combining comprises adding the scaled first component and the scaled second component.

29. A method of shifting the phase angle of a signal comprising:

providing a signal having a phase angle;

providing a phase shift angle;

providing the signal into a sine component and a cosine component;

multiplying the sine component by a sine value corresponding to the phase shift angle;

multiplying the cosine component by a cosine value corresponding to the phase shift angle; and

adding the sine component and the cosine component after the multiplyings to shift the phase angle of the signal by the phase shift angle.

30. The method according to claim 29 further comprising storing a plurality of sine values and cosine values and outputting a sine value and a cosine value individually corresponding to the phase shift angle.

31. The method according to claim 29 wherein the providing the signal into a sine component and a cosine component comprises providing using a ninety degree power divider.

32. The method according to claim 29 wherein the multiplyings individually comprise multiplying using a mixer.

33. The method according to claim 29 wherein the combining comprises adding the scaled first component and the scaled second component.

34. The method according to claim 29 wherein the adding comprises adding using a zero degree power divider.

35. A method of operating a coherent interrogator of a backscatter communication system comprising:

outputting a radio frequency continuous wave signal;

providing a local continuous wave signal;

receiving a modulated continuous wave signal;

providing a phase shift angle;

adjusting the phase of the local continuous wave signal using the phase shift angle to provide an adjusted continuous wave signal, the adjusting including:

providing the local continuous wave signal into a first component and a second component;

scaling the first component using the phase shift angle;

scaling the second component using the phase shift angle; and

combining the first component and the second component after the scalings to shift the phase angle of the local continuous wave signal by the phase shift angle; and

combining the adjusted continuous wave signal and the modulated continuous wave signal.

36. The method according to claim 35 wherein the providing the signal into a first component and a second component comprises providing the signal into quadrature components.

37. The method according to claim 35 wherein the providing the signal into a first component and a second component comprises providing the signal into a sine component and a cosine component.

38. The method according to claim 35 further comprising storing a plurality of sine values and cosine values and outputting a sine value and a cosine value individually corresponding to the phase shift angle.

39. The method according to claim 35 further comprising storing a sine value and a cosine value individually corresponding to the phase shift angle.

40. The method according to claim 39 wherein the scalings individually comprise multiplying one of the first component and the second component by one of the sine value and the cosine value.

41. The method according to claim 35 wherein the combining comprises adding the scaled first component and the scaled second component.